

NARRATIVE REPORT
GREAT MEADOWS NATIONAL WILDLIFE REFUGE
JANUARY - APRIL, 1959

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES & WILDLIFE
CONCORD, MASSACHUSETTS

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JANUARY, FEBRUARY, MARCH, APRIL, 1959

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Refuge Manager-----
Refuge Assistant-----
WAE-----

Gordon T. Nightingale
Ralph H. Holderby
Donald Grover

*Orig. to C.O.
5/28/59.
-c.g.*

*mm
5/21*

NARRATIVE REPORT

GREAT MEADOWS NATIONAL WILDLIFE REFUGE

CONCORD MASSACHUSETTS
 JANUARY FEBRUARY MARCH APRIL 1959

I GENERAL**A. WEATHER CONDITIONS**

The following information was furnished by the 6th detachment, 4th weather group, United States Air Force, L. G. Hansom field, Bedford Massachusetts.

<u>Month</u>	<u>Precipitation</u>		<u>Temperatures</u>		
	<u>Snowfall</u>	<u>precip</u>	<u>normal</u>	<u>Max</u>	<u>Min</u>
Jan	7.6	2.98	3.73	62	0
Feb	8.7	3.50	2.89	52	-2
Mar	23.7	4.51	4.19	66	8
Apr	0	4.67	4.18	74	31
	40.0	15.66	14.99		

Snowfall was measured for water content but records to the amount of total snowfall were kept at two different methods. one at the amount of 24 hour precipitation, and one for the amount of coverage on the ground. The total snowfall amounted to 40", which is normal for the period.

B. Habitat Conditions**1. Water**

Water levels remained static through the months of January and February, both marshes were frozen over, with the only open water being the spillways where some current existed.

During the month of March the Sudbury Water Control System released excess water stored in their dams, anticipating, spring runoff, and our marshes were flooded from without.

During the month of April the Sudbury Water Control System attempted to catch the runoff and the river dropped. Our lower marsh, dropped accordingly. The lower Spillway was raised 12" to trap and retain water for the summer.

2. Food and Cover

During the January and February period, very little food was available due to ice conditions. The Concord River remained open for about 600 yards along the lower or easternly edge of the Refuge, Some Canada Geese, American Mergansers, and Golden-eyes utilized this area.

The second week of March some Plankton organisms, Green Algae (Chlorophyceae) began to appear with the open water.

The third week of March some of the fish (nekton) frogs leeches (same order) were observed to be moving.

The third week of March, some of the duckweeds began to come to near the surface and drift with the currents. *Lemna minor*, *wolffia*, and other remnants of the Lemnaceae.

Elodia and green Algae, also started to appear. The surface film inhabitants (Nuestron), clingers and climbers (Periphyton) and bottom dwellers (Benthos) made their appearance.

Eighty five percent of the marsh remained covered with dead bur weed (Sparganiaceae) cat-tail (Typhaceae) and grasses (Gramineae). The button brush (*Cephalanthus occidentalis*) also takes some part of the marsh area. Control method should begin this year.

II WILDLIFE

A. Migratory Birds

During this period the marshes remained frozen over during the periods of January, February, and the first week in March.

As soon as open water appeared in the marshes, Black-ducks, and Mallards seem to arrive overnight. Black-ducks seem to be the most dominant species, with Mallards close.

The month of April the total population was about static, most of our remaining birds seemed to establish territories, and go into their normal spring behavior.

American Coot also made their appearance, along with Killdeer and the Tree Swallows.

One pair of adult Ring-necked ducks have been observed several times during this period and we hope for nesting, again. The last nesting pair were observed here many years ago.

Rails were heard calling the last week of this period but none observed. One Florida Gallinule was observed during the last week of this period.

The Wood-duck nesting boxes were put in order (fresh shavings, new lids, new predator guards) on April 3rd, with the co-operation of the District Game Manager (one man) and the State Game Biologist (Field Office Westboro, Mass).

During the week of April 19th to April 25th, The State Game Biologist, again checked the nesting boxes with the assistance of Refuge Assistant and one WAE employee. A total of twenty one nests were recorded. Eleven nests had females on, none were disturbed. A effort will be made to band the adult females, sometime during the second week of May 1959.

Two nests were apparently dump nests as one had eleven eggs and the other 12 eggs, with both nests cold. The remaining eight nests were cold and we assume that they have just started.
See N. R. Forms 1 & 1a

B. Upland Game Birds

Ring-necked Pheasants seemed to be more plentiful than last year, during the same period. The contributing factor in this observers opinion, being the housing developments, that are rapidly encroaching on the area.

C. Elk Game Animals

During this period one white tailed deer was observed on the ice of the lower marsh. There are so many children and dogs on the Refuge side of the Concord River, that the deer do not stay long.

H.

D. Fur Animals

This period a red fox was observed once during the month of January, and once during the month of February. Muskrat started moving as soon as open water appeared. The muskrat population seems to be low at this time. Grey squirrels were active all during the winter months. Corn was put out for them as some bark chewing was observed during the deep snows of March.

E. Hawks, Eagles, Owls, Crows, Ravens and Nighthawks

During the cold months crows were busy on the ice cleaning up the dead fish, killed from ice conditions. Some owls also were observed during this period. Two Rough-legged Hawks, and one Osprey were observed during the March period.

F. Other Birds

Marsh and Shore birds started to come through during the last week of this period. A pair of mourning Doves were observed during this week.

A Hawk-Owl was in the vicinity of the Refuge, and out of its environment, died during this period. While alive this bird attracted much interest.

G. Fish

A heavy winter kill occurred during freeze-up. Pumpkin-seed sunfish (*Lepomis gibbosus*) Red Fin pickerel (*Esox americanus*) Bull heads (*Ameiurus nebulosus*) and Golden Fishers (*Notemigonus crysoleucas*) were observed caught in the ice.

Bullheads attracted to the running water of the middle spillway were very thick. Fox, Crows, Owls and a Great Blue Heron feasted on these all winter.

H. Reptiles

One large snapping turtle was observed on the dike the third week of April (*Chelydra serpentina*) and caught. Our WAE employee made soup the next day.

Several Eastern Painted Turtles (*Chrysemys picta*) were observed during the warmer days of April.

One Northern water snake (*Natrix sipedon*) was observed during this period.

I. Disease

None this period. ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Brush along the dike system was cut during the first of this period. Oil was purchased for the oil stove in the shop and brought in by drums and pumped by hand into the oil tank.

The first of this period Refuge Assistant, helped the Parker River Staff, remove surplus equipment from Air Craft Carriers at the Boston Naval Reserve station.

The second month of this period a small piece of boundary line that crosses the marsh was brushed out. Posts were hauled to this area, preparing to finish the boundary line. The shop was kept clean, Muskrat pelts were sorted and hung to dry. Tools were sorted and hung from the pegboard.

Refuge Assistant made a trip to the Oak Orchard Area during this period and returned by the way of Montezuma Station and Vorheesville N. Y. purpose of the trip was surplus equipment.

The equipment building was painted with Cresote and the gate posts tightened and cresoted.

An entrance sign was erected at the Munson road entrance, and a directional sign was erected at the Munson road, and Bedford St.

Fill was hauled to muskrat burrows along the dike system, and 119 yds of gravel were hauled to the dikes, and low places filled.

The lower spillway was raised 12" to trap and hold water for the summer. Large stones were placed in the spillway, and crushed gravel spread on top.

A stock pile of gravel for small dike repairs was made at the dike junctions

The small sprouts along the boundaryline were again cut and the fence line tightened.

B. Plantings

1. Aquatic and Marsh Plants

2 Trees and Shrubs

None

3 Upland Herbaceous Plants

4 Cultivated Crops

C. Collections and Receipts

None

C. Control of Vegetation

Some land clearing around the equipment building, and control of woody growth along the boundaryline with hand tools (brushette, Axe and Chain Saw) occurred during this period.

E. Planned Burning

The burning plan for this area calls for no burning due to extreme fire hazard to adjoining buildings and private property

F. Fires

None this period

IV RESOURCE MANAGEMENT

A. Grazing

None

B. Haying

None

C. Fur Harvest

During the last quarter of 1958, a share trapper was put under agreement and allowed to trap the refuge. Basis of 60;40 division of pelts, with the trapper retaining all raccoon and fox pelts.

No Houses	total population	total catch	Trappers share	Govt share
44 44 %	220	159	97	62

Trapper sold his share of the pelts for \$ ~~83.42~~
Govt share shipped to the New York Auction Co.

D. Timber Removal

None

E. Commercial Fishing

None

F. Other uses

None

V. ~~Field~~ INVESTIGATIONS OR APPLIED RESEARCHA. Progress Report

There are no projects being run by Service personnel

B. Wood-Duck nesting boxes

State of Massachusetts, Field Office Biologist has taken data from the wood-duck nesting boxes for several years. This year we co-operated with State personnel, in repair and replacement of the existing boxes. We also assisted in the first nest check. Some mention was made by State personnel, that we take over the complete check, banding of females, and box maintenance. A meeting between State Personnel, Refuge Manager, and Refuge Assistant, will be made sometime during the next quarter. A report of the developments of this meeting will be made.

VI PUBLIC RELATIONS

A. Recreational Uses

During this period Refuge Visitors were many. Every pretty weekend, we were visited by members of the Audubon Society, and Nature Study Groups. Scattered visits were made during the week. The last two months of this period visitors have increased more than last year.

B. Refuge Visitors

Agent Girard	FBI	Framingham, Mass	visit
Arthur Miller	Reg. Ref. Sup.	Boston, Mass	inspection
Allen Studholme	Asst Reg Director	Boston, Mass	inspection
David Grice	Mass, F&G Biologist	Westboro Mass	W-D Data
Thomas Seahan	Mass, F&G	Acton, Mass	Co-operation
Agent Van-Welden	Game Management	Plymouth, Mass	enforcement
Chief Kelly	Concord P.D.	Concord, Mass	visit
Dr Grisom	Mass Audubon Soc.	Boston, Mass	visit
Allen Morgan	Mass Audubon Soc.	Boston, Mass	visit
Norman Holgerson,	Pred & Rodent Cont.	Worcester, Mass	visit
H. Kent	Concord C of C	Concord, Mass	visit
Town Mgr Nelson	Concord, Mass		co-operation
Mr Robinson	Town Engineer	Concord, Mass	"
Mr Magarry	Town Engineer	Concord, Mass	"
Refuge Manager	Nightingale Parker River Refuge		Supervision

C. Refuge Participation

During this period Refuge Assistant gave talks and showed Refuge slides to the following groups

Concord Rod & Gun Club, Concord Mass	70 present
Concord Conservation Club, Concord Mass	35 present
Concord Police Department	35 present

The Refuge Assistant also attended a dinner given by the Concord Chamber of Commerce, and was introduced.

Refuge Assistant attended an afternoon tea by the D.A.R. with Refuge Manager, and read paper, on the Parker River Refuge. Class Pond Life Hathaway School 25 present

Refuge Assistant is taking the night class on Pond Life. Most of the Adult Students are Biology instructors.

D. Hunting

None this period

E. Violations

None this period

VII OTHER ITEMS

A. Items of Interest

Refuge Assistant spent about all day, with Concord Town Manager Nelson, and two Town Engineers concerning the directional sign, that was to be placed at the innersections of Bedford

road and Munson road. They were agreeable to our erecting such a sign if it would not detract from the street name sign that existed there.

Refuge Assistant made up a plan to use a sign hanger that would hold two of our Blue Goose Boundry marking signs back to back, with a directional arrow. This hanger attached to the existing street marker.

The Town Manager approved, and the directional sign was placed.

The Chamber of Commerce has a information booth, located at the square in the Town Center. They are now supplied with Refuge Maps and Phamplets. Last year they received several inquiries concerning the Great Meadows Refuge.

We have already received complements about our directional sign.

B. Photographs

None available at this time. Several 35MM slides were taken during this period. Some at this Refuge, and some at the Parker River Refuge.

Date May 5, 1959

Prepared by

R. H. Holderby
Refuge Assistant

Submitted By

27 [Signature]
Refuge Manager

Approved by

Arthur [Signature]
Reg. Ref. Sup.

Regional Director

W A T E R F O W L

REFUGE GREAT MEADOWS, CONCORD, MASS

MONTHS OF JANUARY TO APRIL 30, 19 59

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>										

NO WATERFOWL THESE WEEKS, MARSH FROZEN OVER

WATERFOWL
 (Continuation Sheet)

REFUGE GREAT MEADOWS, CONCORD, MASS

MONTHS OF JANUARY TO APRIL 30, 19 59

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	3/12-18 11	19-25 12	26-4/1 13	4/2-8 14	9-15 15	16-22 16	23-29 17	30 18			
<u>Swans:</u>											
Whistling											
Trumpeter											
<u>Geese:</u>											
Canada	42	19	42	44	30	20	12	12	1,475		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
<u>Ducks:</u>											
Mallard	50	50	50	50	50	30	25	25	2,160		
Black	150	200	150	175	125	100	100	100	7,100		
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal			10	10	25	25	25	25	690		
Cinnamon teal											
Shoveler											
Wood	25	25	50	75	75	75	75	75	2,875		
Redhead											
Ring-necked						2	2	2	30		
Canvasback	2	2							28		
Scaup											
Goldeneye	5	5							70		
Bufflehead											
Ruddy											
Other											
Am Merg	20	20							280		
<u>Coot:</u>				5	5	5	5	5	145		

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans			
Geese	1,475	44	
Ducks	13,233	310	
Coots	145	5	

SUMMARY
Principal feeding areas Both marshes and along the flooded river edges. Some feeding along timber edge, during high water
Principal nesting areas Along marsh edges, wood duck nesting boxes, tops of muskrat houses

Reported by Ralph H. Helderby, Refuge Assistant

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-178

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge GREAT MEADOWS, CONCORD, MASSMonths of JANUARY to APRIL 30 1959

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Florida Gallinule	1	4/23	4	4/30	4	4/30				
American Bittern	1	3/28	5	4/30	5/	4/30				
Great Blue Heron	1	1/18	2	4/30	2	4/30				
Sora Rail **	2	4/30	2	4/30	2	4/30	** Voice count none observed by this reporter, reported seen by Audubon member.			
Virginia Rail **	2	4/30	2	4/30	2	4/30				
II. <u>Shorebirds, Gulls and Terns:</u>										
Yellow Legs	5	4/23	6	4/30	6	4/30				
Killdeer	5	3/25	8	4/30	8	4/30				
Herring gulls	35	1/25	35 <i>14 04</i>	1/25	4	4/30				

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons:</u>										
Mourning dove	2	4/30	2	4/30	2	4/30				
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle										
Duck hawk										
Horned owl	1	1/20	1	1/20	1	120				
Magpie										
Raven										
Crow	20	1/1	25	2/25	5	4/30				
Osprey	1	3/22	1	3/22	1	3/22				
Rough Legged Hawk	2	3/24	2	3/24	2	3/24				
Reported by						Ralph H. Horderby				

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.

T

Estimated total of the species using the during the period concerned

UPLAND GAME BIRDS

 Refuge GREAT MEADOWS, CONCORD, MASS. Months of JANUARY to APRIL 30, 1940

(1) Species Common Name	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total		Hunting	For Re- stocking	For Research		
Ring-neck Pheasant										
Ring-neck Pheasant	54 acres upland timber (white pine hardwood) 54 acres of marsh edge	2			60% male				50	Pertinent information not specifically requested. List introductions here.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES:

Use correct common name.

(2) DENSITY:

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED:

Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO:

This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS:

Indicate total number in each category removed during the report period.

(6) TOTAL:

Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS:

Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge OKTAT MEADOWS, Concord Mass Year ending April 30, 59

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Muskrat	220 acres of Marsh & River Edge	36		159				T8314	97	62				61
Raccoon	254 acres, marsh up- land timber & river edge	50		2					2					5
Red Fox	54 acres of upland and river edge 50 acres marsh edge	52			1									2

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

Ralph H. Haldenhu

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed. On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unfitness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.